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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR      | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|---------------------------|---------------------|------------------|
| 10/615,772      | 07/10/2003  | Mickaele Le Ravalec-Dupin | 612.42904X00        | 5959             |

|                                      |      |            |
|--------------------------------------|------|------------|
| 20457                                | 7590 | 04/06/2007 |
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|                        |
|------------------------|
| EXAMINER               |
| THORNEWELL, KIMBERLY A |

|          |              |
|----------|--------------|
| ART UNIT | PAPER NUMBER |
| 2128     |              |

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE  | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS                               | 04/06/2007 | PAPER         |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

|                              |                                 |   |  |
|------------------------------|---------------------------------|---|--|
| <b>Office Action Summary</b> | Application No.<br>10/615,772   | Applicant(s)<br>LE RAVALEC-DUPIN ET AL. |  |
|                              | Examiner<br>Kimberly Thornevell | Art Unit<br>2128                        |  |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 January 2007.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 27-42 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 27-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 January 2007 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Claims 6-26 were previously presented for examination. In the Office Action dated 8/24/2006, claims 6-26 were rejected. In the reply dated 1/24/2007, Applicant cancelled all of claims 6-26 and presented new claims 27-42. Therefore claims 27-42 are currently pending examination.

### ***Response to Arguments***

#### **Drawings:**

2. The Examiner respectfully notes the drawings submitted by Applicant on 1/24/2007. Applicant stated that the drawings submitted in the Preliminary Amendment filed 7/10/2003 included a new set of drawings which contain English language text (Remarks page 8 second paragraph). Applicant further submitted a postcard receipt showing the filing of the Preliminary Amendment. Applicant's attention is drawn to the empty check box "Revised Drawings." However, there is no evidence from the receipt that the revised drawings containing the English text were received in the Preliminary Amendment. Furthermore, there is no evidence of an Express Mailing number on the drawings. Therefore, it appears that the replacement drawings were not submitted with the Preliminary amendment. Newly submitted drawings are not acceptable because they are not labeled as "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). Therefore the objection to the drawings is maintained.

#### **Specification:**

3. Applicant stated that an Abstract was submitted in the Preliminary Amendment submitted 7/10/2003. The Examiner submits that the objection to the Abstract in the 8/24/2006 Office Action was made in error, as the substitute Abstract submitted 7/10/2003 was overlooked. An apology is extended to the Applicant for this inconvenience.

Claim Objections:

4. Applicant cancelled claims 6-26. Therefore, the objections to claims 7, 14 and 20-24 are moot.

Claim Rejections, 35 USC 112:

5. Applicant cancelled claims 6-26. Therefore, the rejections of the claims are moot.

Claim Rejections, 35 USC 101:

6. Applicant cancelled claims 6-26. Therefore, the rejections of the claims are moot. However, regarding claim 27, Applicant argued that the steps of claim 27 are tied to "a priori geological data" and "dynamic data" collected in a reservoir by measurements and observations all of which pertain to a real world application involving data acquisition from a reservoir (Remarks page 13 lines 6-9). The Examiner respectfully traverses Applicant's argument because while the reservoir model is based upon collected data from a reservoir, the method as claimed does not set forth a practical application "to produce a real world result." While hydrocarbon exploration and production may be practical applications, there are no steps set forth in the claim that use the reservoir model in these applications. Hence, no tangible, real-world result is

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achieved by the claims. Accordingly, claims 27-42 are directed to non-statutory subject matter and are rejected under 35 USC 101.

***Claim Rejections - 35 USC § 101***

7. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

8. Claims 27-42 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. The claims are directed to an abstract idea and fail to set forth a practical application to produce a real world result. The final result of claim 27 is directed to propagating corrections to a set of grid cells of a reservoir model. However, the claim lacks a tangible result because no application is provided to the reservoir model in order to produce a real-world result. Therefore claim 27 fails to produce a useful, concrete, and tangible final result. Claims 28-42 depend from claim 27 and do not overcome the deficiencies of claim 27.

***Drawings***

9. The drawings were received on 1/24/2007. These drawings are not accepted because they do not contain "Replacement Figure" labels.

***Claim Rejections - 35 USC § 102***

10. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

11. Claims 27-42 are rejected under 35 U.S.C. 102(b) as being anticipated by Orotoleva, US Patent Application Publication no. 2002/0013687.

As per claim 27,

Orotoleva discloses a method for constructing a reservoir model representative of an underground reservoir (**page 3 paragraph 71**), including discretizing said reservoir by a set of grid cells (**page 6 paragraph 113**), and associating with said reservoir model a permeability field (**page 4 paragraph 97**) constrained by a priori geologic data and dynamic data collected in said reservoir by measurements and observations (**page 4 paragraph 98**) comprising:

- Constructing an initial reservoir model including generating a permeability field (**page 3 paragraph 71**) in accordance with a stochastic model (**page 4 paragraph 102, probability model**), coherent with the a priori geologic data (**page 4 paragraph 98, basin stress history**);
- Identifying zones inside said reservoir (**page 3 paragraph 90**);
- Calculating effective permeabilities of said zones (**page 4 paragraph 97**) and carrying out, by means of a simulator, a simulation of fluid flows (**page 7 paragraph 152**), to estimate corrections to be brought to said effective permeabilities to improve calibration in relation to said dynamic data (**page 12 paragraph 212; optimizing to predict permeability using flow laws described in paragraph 214**); and

- Propagating said corrections to said set of grid cells of said reservoir model, by means of an iterative optimization process comprising minimizing a function which depends on said correction, using a technique of gradual deformation of realizations of said stochastic model (**page 14 paragraph 239**).

As per claim 28,

Ortoleva discloses the zones being defined automatically from the flow simulator (**page 6 paragraph 123**).

As per claims 29 and 30,

Ortoleva discloses the flow simulation being carried out by means of a streamline simulator and said zones of said underground reservoir are identified by a set of grid cells traversed by one or more streamlines of fixed geometry (**page 14 paragraph 239**).

As per claims 31-34,

Ortoleva discloses the zones being identified as volume portions on a periphery of wells running through said reservoir, within a framework of well tests (**page 19 paragraph 302**).

As per claims 35-42,

Ortoleva discloses at least one gradual deformation parameter being assigned to each of said zones (**page 14 paragraph 239**).

*Conclusion*

12. The prior art made of record on the form PTO-892 and not relied upon is considered pertinent to applicant's disclosure.

13. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kimberly Thornewell whose telephone number is (571)272-6543. The examiner can normally be reached on 9am-5:30pm M-F.

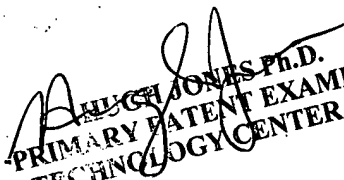
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kamini Shah can be reached on (571)272-2279. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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